*FlyBy Math*TM **Alignment**
Montana Standards for Mathematics 10/98

Content Standard 1: Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.

Benchmarks: End of Grade 12

Students will:	*FlyBy Math*TM **Activities**
1. recognize and formulate problems from situations within and outside mathematics and apply solution strategies to those problems.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
2. select and apply appropriate estimation strategies throughout the problem-solving process.	--Predict outcomes and explain results of mathematical models and experiments.
3. formulate definitions, make and justify inferences, express generalizations, and communicate mathematical ideas and relationships.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Predict outcomes and explain results of mathematical models and experiments.
4. apply and translate among different representations of the same problem situation or of the same mathematical concept. Model connections between problem situations that arise in disciplines other than mathematics.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Content Standard 3: Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems.

Benchmarks: End of Grade 12

Students will:	*FlyBy Math*TM **Activities**
1. use algebra to represent patterns of change.	--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system. --Interpret the slope of a line in the context of a distance-rate-time problem. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

4. solve systems of algebraic equations and inequalities, including use of matrices.	--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
5. use algebraic models to solve mathematical and real-world problems.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Content Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.

Benchmarks: End of Grade 12

Students will:	*FlyBy Math*[TM] Activities
3. investigate systems of derived measures (e.g., km/sec, g/cm^3).	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Content Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.

Benchmarks: End of Grade 12

Students will:	*FlyBy Math*[TM] Activities
1. describe functions and their inverses using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
3. analyze the effects of parameter changes on the graphs of functions and relations, including translations.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
4. model real-world phenomena with a variety of functions.	--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.